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EurOpto Conference, Barcelona Spain
Presentation Date: 09/25-29/00

Abstract Title: Imagery and initial results from the Terra Multi-angle Imaging SpectroRadiometer (MISR)

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The Multi-angle Imaging SpectroRadiometer (MISR) instrument was launched into polar orbit aboard the Terra spacecraft in December 1999, and collection of Earth imagery began in February 2000. MISR contains nine cameras pointed at fixed along-track directions, and acquires images with view angles at the Earth's surface ranging from 70.5 degrees forward of nadir to 70.5 degrees aftward. Each camera contains four CCD line arrays filtered to blue, green, red, and near-infrared wavelengths. Spatial sampling ranging from 275 m to 1.1 km is obtained over a 400-km swath width. Each area observed by MISR is imaged at all nine angles within a seven-minute period. MISR provides a unique approach to characterizing atmospheric aerosols, the surface, and clouds. The oblique view directions accentuate sensitivity to atmospheric particulates due to the slant-path geometry and enhanced scattering of sunlight. Variations in angular reflectance with angle are capable of distinguishing different types of surface scenes. Additionally, multi-angle parallax facilitates localization in three-dimensions of the scene elements responsible for solar reflection. Illustrative results obtained using imagery acquired during the first several months of orbital operations will be presented.